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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,631	07/31/2003	Edward Hin Pong Lee	HIT1P016/HSJ9-2003-0096US	6355

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EXAMINER

CULBERT, ROBERTS P

ART UNIT PAPER NUMBER

1763

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/632,631	Applicant(s) LEE ET AL.	
	Examiner Roberts Culbert	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 and 11-30 is/are pending in the application.
- 4a) Of the above claim(s) 11-14 and 19-29 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-18 and 30 is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of: .
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments filed 9/27/05 have been fully considered.

Applicant has argued that the prior art does not teach removing side portions of the cap as recited in claim 1, however, Chang et al. fairly recites the limitation since the cap removal step occurs during the milling process of Chang et al.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-4 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,119,331 to Chang et al.**

Regarding Claim 1, Chang et al. teach a method for fabricating a magnetic head comprising forming a first pole (200); forming a cap (204) above the first pole (Col. 7, Lines 25-56) removing portions of the cap such that empty side regions are positioned laterally on opposite sides of the cap (Figure 17) after removing the portions of the cap; forming a dielectric gap layer (205) above the cap (Col. 7, Lines 62-65); forming a second pole layer above the gap layer (Col. 8, Lines 1-3); and milling the structure for creating a shoulder of the first pole tapering upwardly towards the cap (Col. 8, Lines 50-55).

Regarding Claim 2, Chang et al. teach filling the side regions with a material selected from a group consisting of a dielectric, a material susceptible to removal by reactive ion etching and a material susceptible to milling.

Regarding Claim 3, Chang et al teach in sequence, prior to milling, removing the exposed portions of the gap layer, and removing the material used to refill the side regions. (Note that the material

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may be the same material as the exposed portions of the gap layer since the "in sequence" limitation of the claim may simply refer to performing the steps after milling, as it occurs in the Chang et al. reference.

Regarding Claim 4, Chang et al. teach that side edges of the second pole, gap layer and cap are vertically aligned. (See Figure 19, for example)

Regarding Claim 9, the structure is ion milled. (Col. 8, Lines 42-50)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 5-7, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,119,331 to Chang et al. in view of U.S. Patent application Publication 2001/0055879 to Sasaki.**

Regarding Claims 5-7, as applied above to claims 1-4 and 9, Chang et al. teach the method of the invention substantially as claimed, but do not explicitly teach the various materials of the gap layer.

However, materials such as alumina, silicon dioxide, and other suitable non-magnetic materials are old and well known in the art of forming the gap layer of a magnetic head. (See, for example Paragraph 73 of Sasaki.)

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It would have been obvious to one of ordinary skill in the art at the time of invention to use the art-recognized gap materials in order to provide an induction for the magnetic head in the well-known manner.

**Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,119,331 to Chang et al.**

Regarding Claim 8, as applied above to claims 1-4 and 9, Chang et al. teach the method of the invention substantially as claimed, but do not explicitly state that the second pole is formed on a seed layer, however Chang et al. points out that a seed layer is old and well known for the purpose of frame plating a second pole layer on a gap layer in the fabrication of a magnetic head. (Col. 2, Lines 1-5) It would have been obvious to one of ordinary skill in the art at the time of invention to use a seed layer in the well-known manner in order to provide adhesion of a plated pole layer to a gap layer in the fabrication of a magnetic head.

***Allowable Subject Matter***

Claims 15-18 and 30 are allowed.

The following is an examiner's statement of reasons for allowance of Claim 30:

The prior art of record fails to teach or render obvious a method of fabricating a magnetic head comprising; forming a first pole; forming a cap above the first pole; empty side regions being positioned laterally on opposite sides of the cap; filling the side regions with a material selected from a group consisting of a dielectric, a material susceptible to removal by reactive ion etching, and a material susceptible to removal by milling; forming a dielectric gap layer above the cap and the fill material; forming a second pole above the gap layer; and milling the structure for creating a shoulder of the first pole tapered upwardly towards the cap.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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**Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (571) 272-1433. The examiner can normally be reached on Monday-Friday (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. Culbert  
Examiner  
Art Unit 1763

*P.L.*  
Parviz Hassanzadeh  
Supervisory Patent Examiner  
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